

Appl. No. 10/047,613

Amdt. Dated December 24, 2003

Reply to Office Action of September 24, 2003

CLAIM AMENDMENTS

1-14 (canceled).

15 (currently amended): A laser diode emitting a beam having a profile, comprising:

a vertical resonator; and

a laser diode beam profile shaper having at least one bleaching ~~decelerating~~ absorber ~~(5)~~ in said vertical resonator.

16 (previously presented): The laser diode according to claim 15, including at least one pn junction having a material selected from the group consisting of III-V compound semiconductor material and II-VI compound semiconductor material.

17 (currently amended): The laser diode according to claim 15, wherein said at least one absorber ~~(5)~~ is monolithically integrated into a series of layers.

18 (currently amended): The laser diode according to claim 17, wherein:

said series of layers has a Fabry-Perot resonator; and

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said at least one absorber ~~(5)~~ is disposed in said Fabry-Perot resonator.

19 (currently amended): The laser diode according to claim 16, wherein:

said pn junction has a depletion zone; and

said at least one absorber ~~(5)~~ is disposed outside said depletion zone.

20 (currently amended): The laser diode according to claim 15, wherein said at least one absorber ~~(5)~~ is formed as a layer in said vertical resonator, said layer having a thickness approximately equal to a quarter of a material wavelength.

21 (currently amended): The laser diode according to claim 15, wherein said at least one absorber ~~(5)~~ is formed as a layer having a thickness greater than a quarter of a material wavelength.

22 (currently amended): The laser diode according to claim 15, wherein said at least one absorber ~~(5)~~ is formed as a

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layer in said vertical resonator, said layer having a thickness greater than a quarter of a material wavelength.

23 (currently amended): The laser diode according to claim 15, wherein said at least one absorber ~~(5)~~ has a current constrictor.

24 (previously presented): The laser diode according to claim 23, wherein said current constrictor is a combination of a medium of said absorber with one of the group consisting of an oxide aperture and proton implantation.

25 (currently amended): The laser diode according to claim 15, wherein said at least one absorber ~~(5)~~ has a means for current constriction

26 (previously presented): The laser diode according to claim 25, wherein said current constricting means is a combination of a medium of said absorber with one of the group consisting of an oxide aperture and proton implantation.

27 (previously presented): The laser diode according to claim 16, wherein said pn junction has a p-contact and an n-contact each to be connected to a respective one of two electrical supply leads.

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28 (currently amended): The laser diode according to claim 15, wherein said vertical resonator has a means for current constricting ~~(53)~~.

29 (currently amended): The laser diode according to claim 15, wherein said vertical resonator has a current constrictor ~~(53)~~.

30 (currently amended): The laser diode according to claim 15, including at least one reflector layer ~~(2, 6)~~ having a relief structure for improving a mode selection.

31 (previously presented): The laser diode according to claim 16, wherein said relief structure is a Fresnel lens.

32 (previously presented): The laser diode according to claim 15, wherein said vertical resonator has at least one spacer layer.

33 (currently amended): The laser diode according to claim 32, wherein:

said vertical resonator has an absorber layer ~~(50)~~ and an active zone ~~(4)~~; and

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said at least one spacer layer is disposed between said absorber layer ~~(50)~~ and said active zone ~~(4)~~.

34 (previously presented): The laser diode according to claim 33, wherein at least one layer of said vertical resonator is of one of the group consisting of GaAsN and InGaSbP.

35 (previously presented): The laser diode according to claim 29, wherein:

said vertical resonator has layers; and

at least one of said layers of said vertical resonator is of one of the group consisting of GaAsN and InGaSbP.

36 (currently amended): A laser diode emitting a beam having a profile, comprising:

a vertical resonator;

a means for shaping the beam profile connected to said vertical resonator; and

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said shaping means having at least one ~~decelerating~~ absorber

~~(5)~~ means for bleaching by decoloring in said vertical resonator.

37 (currently amended): In an optical system, a laser diode emitting a beam having a profile, the laser diode comprising:

a vertical resonator; and

a laser diode beam profile shaper having at least one ~~decelerating~~ absorber layer for bleaching ~~(5)~~ in said vertical resonator.

38 (currently amended): In a compact disc player, a laser diode emitting a beam having a profile, the laser diode comprising:

a vertical resonator; and

a laser diode beam profile shaper having at least one ~~decelerating~~ absorber configured to bleach by decoloring ~~(5)~~ in said vertical resonator.

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39 (currently amended): In a data transmission system, a laser diode emitting a beam having a profile, the laser diode comprising:

a vertical resonator; and

a laser diode beam profile shaper having at least one ~~decoloring~~ absorber for bleaching by decoloring (5) in said vertical resonator.